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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/539,287	03/30/2000	David V. Pedersen	P48D1-US	8250

7590 07/11/2003
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EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/539,287

Applicant(s)

PEDERSEN ET AL.

Examiner

Jeremy C. Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41,43-46,49,54,55,57-60 and 65-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41,43-46,49,54,55,57-60 and 65-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,14.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 March 2002 has been entered.

Drawings

The drawings are objected to because the sectional views are not properly cross-hatched (see MPEP 608.02). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 44, 45, 55, 65, and 66 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,383,564 (hereafter Lalmond).

Lalmond discloses, referring to figure 3-5, a electronic component comprising a substrate (31) including a conductive area (34); masking material (37) formed on said substrate, said masking material patterned to form an opening (40) corresponding to at least a portion of said conductive area and a main body portion; conductive material (60) deposited on said masking material within said opening and on said main body portion, said conductive material composing a contact structure comprising a base region electrically connected to said conductive area and formed within said opening and a main body region formed on said main body portion of said masking material, said main body region being integrally formed with said base region and displaced away from said substrate [claim 65], wherein at least a portion of the main body region is displaced from the substrate by a distance of between about 5 and 200 mils (see col. 4, lines 20-50) [claim 44], wherein at least a portion of the main body region is displaced from the substrate by a distance of between about 2 and 8 mils (see col. 4, lines 20-50) [claim 45], wherein the conductive material comprises a material selected from the group consisting of nickel, copper, cobalt, iron, gold, silver, elements of the platinum group, noble metals semi-noble metals, elements of the palladium group, tungsten, and molybdenum (see col. 5, lines 10-15) [claim 55], wherein said masking material comprises a plurality of masking layers (37, 38, 42) [claim 66].

Claims 43, 46, 57-59, and 67-70 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,846,166 (hereafter Saiki).

Saiki discloses, referring to figure 1c, a electronic component comprising a substrate (11) including a conductive area (12); masking material (13) formed on said substrate, said masking material patterned to form an opening (17, see figure 1b) corresponding to at least a portion of said conductive area and a main body portion; conductive material (18) deposited on said masking material within said opening and on said main body portion, said conductive material composing a contact structure comprising a base region electrically connected to said conductive area and formed within said opening and a main body region formed on said main body portion of said masking material, said main body region being integrally formed with said base region and displaced away from said substrate [claim 65], wherein the main body region is approximately parallel to a surface of the electronic component [claim 43], wherein said contact structure further comprises a sloped region disposed between the base region and the main body region [claim 46], wherein the substrate comprises a semiconductor device [claims 57, 59] that has been singulated from a wafer (see col. 5, lines 60-70) [claim 58], wherein said opening is tapered [claim 67], further comprising a terminal on a surface of said substrate [claim 68], said terminal being electrically connected to said conductive area [claim 69].

Similarly, Saiki discloses, referring to figure 1c, an electronic component comprising: a substrate (11) including at least one conductive element; conductive means (12) for providing an electrical connection with at least one of said conductive

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elements of said substrate; masking means (13) for forming a patterned mold comprising an opening (17) corresponding to at least a portion of said conductive means and a main body portion; contact means (18) for providing an electrical connection between said conductive means and a point displaced from said substrate, said contact means formed of a conductive material integrally deposited on said masking material means within said opening and on said main body portion, said contact means comprising: a base region formed on said conductive means within said opening, and a main body region formed on said main body portion of said masking means, said main body region being integrally formed with said base region and displaced away from said substrate [claim 70].

Claims 43, 46, 65, and 67-70 are rejected under 35 U.S.C. 102(e) as being anticipated by US 5,436,411 (hereafter Pasch).

Pasch discloses, referring to figure 1f, a electronic component comprising a substrate (104) including a conductive area (108); masking material (110) formed on said substrate, said masking material patterned to form an opening (112) corresponding to at least a portion of said conductive area and a main body portion; conductive material (114) deposited on said masking material within said opening and on said main body portion, said conductive material composing a contact structure comprising a base region electrically connected to said conductive area and formed within said opening and a main body region formed on said main body portion of said masking material, said main body region being integrally formed with said base region and displaced away

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from said substrate [claim 65], wherein the main body region is approximately parallel to a surface of the electronic component [claim 43], wherein said contact structure further comprises a sloped region (114a) disposed between the base region and the main body region [claim 46], wherein said opening is tapered [claim 67], further comprising a terminal on a surface of said substrate [claim 68], said terminal being electrically connected to said conductive area [claim 69].

Moreover, Pasch discloses, referring to figure 2f, an electronic component comprising: a substrate (204) including at least one conductive element (206); conductive means (208) for providing an electrical connection with at least one of said conductive elements of said substrate; masking means (210) for forming a patterned mold comprising an opening (212) corresponding to at least a portion of said conductive means and a main body portion; contact means (214) for providing an electrical connection between said conductive means and a point displaced from said substrate, said contact means formed of a conductive material integrally deposited on said masking material means within said opening and on said main body portion, said contact means comprising: a base region formed on said conductive means within said opening, and a main body region formed on said main body portion of said masking means, said main body region being integrally formed with said base region and displaced away from said substrate [claim 70].

Claims 41 and 65 are rejected under 35 U.S.C. 102(e) as being anticipated by US 5,461,775 (hereafter Tanabe).

Tanabe discloses, referring to figure 1, a electronic component comprising a substrate (1) including a conductive area (2); masking material (3) formed on said substrate, said masking material patterned to form an opening corresponding to at least a portion of said conductive area and a main body portion; conductive material (4) deposited on said masking material within said opening and on said main body portion, said conductive material composing a contact structure comprising a base region electrically connected to said conductive area and formed within said opening and a main body region formed on said main body portion of said masking material, said main body region being integrally formed with said base region and displaced away from said substrate [claim 65], wherein the main body region comprises a curved portion [claim 41].

Claims 41, 60 and 65 are rejected under 35 U.S.C. 102(e) as being anticipated by US 4,436,766 (hereafter Williams).

Williams discloses, referring to figure 1, a electronic component comprising a substrate (11) including a conductive area (13); masking material (14) formed on said substrate, said masking material patterned to form an opening corresponding to at least a portion of said conductive area and a main body portion; conductive material (20) deposited on said masking material within said opening and on said main body portion, said conductive material composing a contact structure comprising a base region (20a) electrically connected to said conductive area and formed within said opening and a main body region (20c) formed on said main body portion of said masking material, said

main body region being integrally formed with said base region and displaced away from said substrate [claim 65], wherein the main body region comprises a curved portion [claim 41], further comprising a separate tip structure (20b) joined permanently to the contact structure [claim 60].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pasch. Pasch discloses the claimed invention as described above with respect to claim 46, except Pasch does not specifically state that the sloped region has an average angle of between about 60 and about 75 degrees. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to form the sloped region in such

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a manner since Pasch teaches that it is well known in the art to form slopes from between ninety degrees to thirty degrees (see col. 2, lines 30-40). Therefore, it would have been an obvious matter of design choice to one having ordinary skill in the art to select the 60 to 75 degree range. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Moreover, it has been held that more than a mere change of form is necessary for patentability. *Span-Deck, Inc v. Fab-Con, Inc.* (CA 8, 1982) 215 USPQ 835.

Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lalmond in view of US 5,416,278 (hereafter Ostrem).

Lalmond discloses the claimed invention as described above with respect to claim 65 except Lalmond does not specifically state that the conductive material comprises nickel. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to form the conductive material of nickel instead of the copper disclosed in Lalmond since it is well known in the art to substitute nickel for copper as evidenced by Ostrem (see col. 1, line 60 – col. 2, line 5). Moreover, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

Applicant's arguments with respect to claims 41, 43-46, 49, 54, 55, 57-60, and 65-70 have been considered but are moot in view of the new ground(s) of rejection.

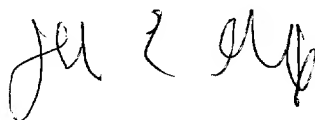
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN
June 24, 2003



**DAVID E. GRAYBILL
PRIMARY EXAMINER**